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- Boulenger, G. A.*—A list of reptiles and batrachians from the Island of Nias. Ext. idem.
- Descriptions of three new species of Geckos. Ext. idem.
- Descriptions of new species of reptiles and batrachians in the British Museum. Ext. idem. All from the author.
- Abbott, H. C. D.*—A chemical study of *Yucca angustifolia*. Ext. Proc. A. A. A. S., Ann Arbor meeting, 1885. From the author.
- Congrès Géologique.*—Liste des membres du bureau et des membres présents à Berlin. 1885.
- Kunz, G. F.*—Precious stones. Dept. of the Intr., 1885. From the author.
- Mather, F.*—Adirondack survey. Zoölogy. Adirondack fishes, with descriptions of new species. Albany, 1886. From the author.
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GENERAL NOTES.

GEOGRAPHY AND TRAVELS.¹

GENERAL.—Dr. T. Fischer, in Petermann's Mittheilungen, maintains that when oceanic agencies alone have formed the coasts, it consists of a succession of arcs, in the case of steep coasts with a short, and of flat coasts with a long radius. Where the coasts exhibit other features, other causes, as movements of the earth's crust, are either more powerful or are very recent.

ARCTIC REGIONS.—The Danish expedition to the east coast of Greenland returned to Copenhagen, Oct. 2d, after an absence of nearly three years. Besides the collection of valuable scientific material, Lieut. Hahn has made some important geographical and ethnographical discoveries. He wintered between latitudes 65° and 66° and reached 66.08° N., the highest point yet visited by Europeans on the coast. He has named the stretch of coast explored Christian IX's land.

The area of Store Baergefjeld, in Arctic Norway, has been represented as an immense glacier field. The observations of Chas. Rabot show that there are nearly seven secondary glaciers, hardly passing beyond the stage of *névé*, and that their total area does not exceed six kilometers. The region is not a plateau, but to the north a mountain mass with summits nearly 6000 feet high, and averaging 3600 feet; and to the south a densely wooded table-land cut up by cañon-like valleys. Rabot has also found that three distinct chains of mountains, reaching a height of more than 3000 feet, exist in the Kola peninsula, between the White sea and Arctic ocean. The district is usually shown as a plain, broken

¹ This department is edited by W. N. LOCKINGTON, Philadelphia.

merely by lakes and low hills. Between the ranges the land is level, and trees of good size reach $63^{\circ} 50'$ N. lat.

AFRICA.—*The Resources of Africa*.—A pamphlet by Dr. A. Fischer, entitled "*Mehr Licht im dunkeln Weltteil*," is interesting as giving the most unfavorable view possible of the resources of Africa, and may be useful to those who have been too much carried away by the enthusiastic reports of travelers.

Dr. Fischer gives the total exports and imports of Zanzibar at £1,750,000, and the total value of the exports of the west coast at £2,450,000. The total annual yield of ivory he estimates at £800,000 in value, and 1,760,000 lbs. in weight. This trade, which with great truth Dr. Fischer regards a curse to Africa, since it diverts the energies of both natives and traders from agriculture, costs the lives of 40,000 elephants annually. The elephant is almost exterminated along the coast over a width of 130 to 200 miles, and is no longer to be found in South Africa. Caoutchouc in East Africa is being rapidly exterminated by the unskillful and improvident way in which the juice is collected. Gum copal, since competition with Australia, has so sunk in price as not to pay unless with slave labor. Dr. Fischer takes also a desponding view of the agricultural capabilities of Africa. On the whole, however, his statistics prove rather the need for settled government and economical exploitation of resources than any unfitness of African soil for colonization or production. Statistics show that the trade of Africa is growing, and coffee, which he maintains cannot be profitably cultivated without slave labor, is a success in Liberia.

Lieut. Wissman's Expedition.—Lieut. Wissman's expedition down the Kassai throws new light on the geography of the Congo basin. The Sankuru, or lower course of the Lubilash, unites with it by two arms 830 and 1000 feet wide; a river which Lieut. Wissman believes to be the Loangwe, though at its mouth it is known as the Temba, flows in lower down; and still lower the great Cuango and the Mfini from Lake Leopold unite their waters with it. Below the Sankuru the Kassai is 3300 yards wide, and lower down, before receiving the Cuango, it spreads out to 10,000 yards or more, and is dotted with islands and sand banks. Its lower portion, known as the Kwa, is narrow, not more than 450 yards, but deep and rapid. The Ruembé, Chibumbo, Luachim, and Chikapa are affluents of the Kassai. Luluaburg is a station established by Wissman on the Lulua, some distance above its confluence with the Kassai. The river voyage commenced at Lubuku, the residence of Mukenge. Below the confluence of the Lulua the native name is Savié. The natives here are Barkuba on the right bank, Bashilelé on the left. Lower down, below the Sankuru, reside the Badinga and Bangodi, and still lower the Bakuta, who were hostile to the explorers, and are reputed cannibals. Still nearer the junction of the Cuango are the Baduna.

African News.—The native population of the Gaboon region is, according to Dr. Lenz, being rapidly driven towards the interior by the Fans. The Germans have annexed the country lying behind the French possessions at Great and Little Popo, on the Gold coast.—M. G. Angelvy, a French engineer in the service of the Sultan of Zanzibar, reports that he has discovered coal of excellent quality on the Lujenda tributary of the Rovuma. The great drawback is the distance from the coast, all the more to be regretted since beds of siderite lie near. The Rovuma, though 2000 feet wide, is but a foot to a foot and a half deep. The sultan intends to work the coal-beds, and to construct a road or railway to Lake Nyassa. Sir John Kirk, in a letter accompanying that of M. Angelvy, states that the coal region lies sixty miles south of the latitude of Delgado bay, and a question of inland frontier is therefore likely to arise between the Sultan of Zanzibar and Portugal.—At Tunis a modern French town is being built between the native city and the lake. Land is being rapidly brought under cultivation, taxes reduced, roads constructed, and the country in every way improved.—M. Moller has proved that the peak of St. Thomas is the highest land in the island of that name, and is 2142 meters high.—The November *Bulletin della Società Geographica Italiana* contains a letter from De Brazza, describing a voyage undertaken from Brazzaville to the Licona or Ncunda. The name Congo is not known by the Apfurus and Bateke, who speak of it as the Great river. The village of Bonga at the mouth of the Alima is large and picturesque, it is intersected in all directions by canals, and the houses, some fifty meters long, form streets. Down the wilderness of canals is brought the large quantity of manioc grown upon the Alima, for the supply of the natives of the Congo banks, which in this part are unfitted for the growth of manioc. De Brazza says that it will be half a century before the labyrinth formed by the various channels of the Congo above Stanley pool is correctly mapped. For eight days, he says, “we believed we were on another river, and found after all that we were on the Congo.” The Apfurus and Bayansi are the same people.—H. Entz and A. Mer have, after a careful study of the voyage of Hanno, the Carthaginian, come to the conclusion that it terminated at Fernando Po. Thymaterrion is identified with the town of Mazaghan, and the promontory of Soloé with Cape Cantin. The Lixus is by Mer identified with the Senegal, by Entz and others with the Draa. The island of Cerné is probably Goree and the Western Horn answers to the Bight of Benin.—Sister Cipriani, one of the prisoners taken by the Mahdi, now freed through the endeavors of M. Sagaro, states that Khartoum is almost deserted, but that Omdurman is now populous and has become a second Mecca, the Arabs coming from all parts to the Mahdi’s tomb, which is a day’s journey from the place. Lupton Bey, Slatin, the commercial traveler Cuzzi, and two

Frenchmen, one a journalist, are prisoners with the Caliph Abdullah at Omdurman.—The German government has published the annexation of the territory called Usaramo in west equatorial Africa; and has occupied Dar-es-Salam, a port opposite to Zanzibar.—The King of Dahomey has abolished human sacrifices in virtue of a treaty entered into between him and the Portuguese governor of San Principe, and a Portuguese protectorate is by the same treaty established over the sea-coast of Dahomey.

ASIA.—*Southern India*.—From some notes by Col. B. R. Branfill, it appears that *Ghat* means a pass and that monsoon is derived from the Arabic *mausim*, which means season. The south-west monsoon, which blows from May to September, is supposed to be the great sea-breeze produced by the rarefaction of the air in the drier parts of Asia, while the north-east monsoon is the ordinary trade-wind. March, April and May are the hot season of Southern India, the north-east monsoon succeeding it. The south-west monsoon parts with its moisture on the Malabar coast, and gets warmer and drier as it blows over the table-land of Mysore. The north-east monsoon fills the rivers and tanks of the drier Carnatic plain to the east of the ghats. The ghats are not very high, and when viewed from the table-land enclosed by them, seem rather a battlemented parapet than a range. A leading feature of the western ghats is a long easy slope, crested with forest, leading up to a cliff overlooking the coast-plain. Such a cliff-summit is called a *Kadure-Mukh* or horse-head. The eastern ghats have no such well-marked line of precipices as the western. Most of the drainage of Mysore, which undulates from two to three thousand feet above the sea, is to the eastward. The larger rivers have deep and rocky channels, but the smaller are converted into series of reservoirs until there is no room for more dams. There are nearly 40,000 such tanks in Mysore, the largest some twenty miles around. The River Cauvery is thus utilized throughout the province. On it are situated the former capital, Seringapatam or Srirangapatnam, which is now deserted, and is a pestilential wilderness, and the ruins of the more ancient capital of Talkad, now buried in sand save only the pinnacles of the temples. In the Wainad or open country of the western highlands, south of Coorg, gold-mining has been commenced, and there are many traces of ancient workings. S. S. E. of the Wainad lies the nearly isolated plateau of the Nilgiri hills or Blue mountains, rising on the western edge to 8000 feet or more, while Dodabetta, a conoidal mass with steep slopes covered with grass and woods, rises from its center to a height of 8640 feet. These hills are the home of the Todas. The Nilgiri hills, though separated from the main table-land of Central India by the Moyar rayine, form really its southern termination. South of them is the Palghat gap, leading from Malabar to the south-central lowlands of Coimbatore and Salem. South of the gap the mountains rise

again as the Anamalai or Elephant hills, and farther south, the Travancore hills. These are a true mountain range, rising directly on all sides from the lowlands, and are steepest on their eastern slopes. The highest measured point, Anamudi or Elephant's brow, is 8840 feet above the sea, and the loftiest known peak in Southern India. This range, called also the Southern ghats, ends at Cape Comorin. To the east of the Anamalai hills lies the lofty plateau of the Palani hills, in two steps, the upper 7000 feet high. Groups of similar but minor masses of hills are met with at intervals eastwards and northwards, surrounding the lowlands of Coimbatore and Salem, perhaps once the seat of a former inland sea. South of the Palanis is a large tract of mountainous wilderness, occupied only by wild animals and wild men of the lowest types, who go unclothed, and feed on such fruits and roots as they can scratch up with their fingers. They can make a fire, but seldom do so, and gather cardamoms, honey and other wild produce to exchange with their more civilized neighbors for salt, grain, and a little cloth to adorn their women. There are no harbors worthy of the name on the usually low Malabar coast, but a chain of lagoons affords inland communication for several hundred miles. Cape Comorin is a low rocky promontory. Once there was a harbor, town, and pearl market, but now nothing is left but the temple of Kanyâ Kumâri, the "Virgin Maid," still a resort for devout Hindus. Korkai, the Kolchoi of Greek geographers, an emporium 2000 years ago, is now three miles inland, its successor Kâyal (the lagoon), mentioned by Marco Polo, is now deserted by the sea, and the present port of Tuticorin promises to be in turn silted up. All the rivers of Southern India tend to shift their mouths northwards from the action of the ocean rollers. The Coromandel coast is marked by a line of sand-hills with lagoons here and there on the landward side, and there seems to be an advanced line of coast in course of formation several miles out to sea. There is much coral in the Gulf of Manar. Besides the changes occurring on this coast from constant causes, storm waves have destroyed many ancient cities and ports.

Asiatic News.—A ruined city, hitherto unknown, has been found in Adana, Asia Minor, not far from Tarsus, near the route from Sélef-Ké to Karaman. Sarcophagi like those of Lycia exist almost intact.—Residents of Siberia are organizing an exploration to investigate for five years the ethnology and social economy of that vast region. Young men will be distributed over the country for that purpose. A railway from Ekaterinburg to Kamishoff is completed; and the canal between the Obi and Yenisei will probably be ready for navigation at the latest in the spring of 1887. Sibiriakoff has established a line of steamers on the Angará, between Lake Baikal and the Yenisei.—M. Daniloff believes that he has found the point of bifurcation of the Oxus into the Amu Daria and the Uzboi or Unguz.—A recent French

writer describes the route from Lao-Kai on the Red river of Tonquin, to Mengtsze in Yunnan. He is not enthusiastic about any of the routes from Tonquin, though he thinks France has as much chance of getting the China trade as any of her rivals. The route from Lao-Kai to Manhao is by river, but from the head of navigation to the plateau of Yunnan the coast is extremely difficult and mountainous.—Commander Réveilliere has succeeded in passing the rapids of the Meikong, beyond Samboc, the chief Cambodian town on the river, in a steamer. These rapids are at present a bar to navigation, but M. Réveilliere is convinced that it is formed of nothing more than a mass of trees permanently freed and added to every year. The town of Strung-Treng where most of the commerce of the Laos reaches the river, is above the rapids.

GEOLOGY AND PALÆONTOLOGY.

THE ENGLISH CRETACEOUS.—With the Cretaceous, or rather with that indefinite age which intervened between the close of the Cretaceous and the dawn of the Eocene, unrepresented by any stratified rock in England, we close the book on the evolution of Gymnosperms for nearly all the archaic anomalous genera which held the place of our larches, pines and spruces, cyresses and junipers, had given way to living genera and even species.

It is a remarkable fact that the extermination of so much that was preëxisting of both the marine and terrestrial fauna, embracing nearly all the armoured cephalopods and the gigantic saurians which had till then occupied the foremost place, should have been accompanied by a similar wholesale disappearance among plants. To suppose that this period was an exceptionally fatal one, annihilating entire orders of the animal kingdom, is to admit, in the complete absence of evidence, a break or jerk in the majestic progress of life upon the earth which is repugnant to common sense; and it is more consonant with our present views to suppose that we are in presence of one of those vast gaps in the geological record which we know must have occurred over and over again in every area upheaved upon which sedimentary rocks had been deposited. In turning from the last Cretaceous deposit in Europe, we seem, so far as the plant world is concerned, to finally break with the past, while the first deposit of the Eocene appears like turning over the first page of the history of things as we see them now. It is thus, perhaps, worth our while to turn aside for a moment to take stock as it were of the closing events of the Cretaceous, so far as we know them at present, in order to estimate the true nature of the apparently sudden bound in the usually stately unarmed progress of evolution.

It appears that during the chalk formation a great wave of depression passed across Europe, traveling from the West to the East, permitting the ingress of the Atlantic, and forming a gulf